

Application Number 09/742,625  
Response to Office Action mailed September 6, 2007

### REMARKS

The following is responsive to the Final Office Action dated September 6, 2007.

#### Claim Rejections Under 35 U.S.C. § 103(a)

##### *A. Paragraph 3*

In paragraph 3 of the Office Action, claims 37-39, 51-52, and 67-71 stand rejected under 35 U.S.C. 103(a) as obvious over DE 2224732 (hereafter DE '732) in view of Cummings (US 3,529,993; hereafter Cummings), further in view of Helmer et al. (WO 9622338; hereafter Helmer) for the reasons of record set forth in paragraph 8 of the Office Action mailed April 23, 2007. Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

The presently claimed invention provides a cost efficient manufacturing process for making polymer coated (primed) composite substrates directly from a press without any extra latex processing or heating/drying steps.<sup>1</sup> In the presently claimed embodiment of this process a primer coating composition is applied on a compressible mat and rapidly forms a crosslinked matrix. A topcoat composition is applied over the primer coating composition, and this construction is compressed and heated in the press to form a polymer coated composite substrate. As pointed out in col. 4 of the issued parent application, U.S. Patent No. 6,165,608, the primer coating composition applied to the mat was originally described in the cited Helmer reference. In Helmer, the composition was utilized as a rapidly hardening traffic paint.

The present invention is based in part on the recognition that the rapidly crosslinking compounds originally described in Helmer would be particularly well suited for use in manufacturing polymer coated composites using cellulosic fibers or particles, and/or wood chips or flakes. The rapid crosslinking eliminates the heating and drying steps required in previous processes, and the compositions are free of formaldehyde,<sup>2</sup> which is difficult to use in a

<sup>1</sup> U.S. Patent No. 6,165,308 at col. 2, lines 36-40.

<sup>2</sup> *Id.*, at col. 2, lines 43-57.

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manufacturing environment and is unacceptable to some customers because it is not environmentally friendly.

The Helmer reference fails to teach or suggest that his formaldehyde-free, rapid crosslinking composition could be useful as a primer for cellulosic or wood composites, or would be compatible with other components used in the manufacture of such composites, such as the presently claimed topcoat composition. The present obviousness rejection is based on the contention that it would have been obvious to one of ordinary skill in the art to use the fast hardening aqueous coating composition of Helmer as the "amino resin" in processes described in DE 2224732 in view of Cummings, since the compositions in Helmer form a hard, smear-resistant, non-tracking surface very quickly after deposit of the coating under ambient conditions.<sup>3</sup>

In view of the above, the rejection is initially based on the contention that it would have been obvious to a skilled artisan to replace the aminoplast resin in DE '732 with the composition in Helmer. A ground for this rejection appears to be that this is a simple process of replacing one "amino resin" for another. Applicants respectfully disagree with this conclusion, and it is Applicants' position that this rejection is neither supported by the teachings of the cited references nor by the general knowledge in the art.

As noted on page 2 of the translation, DE '732 defines aminoplast resins as urea, thiourea and melamine formaldehyde resins. This is consistent with the recognized definition of aminoplast or amino resins, which are made by a reaction of an amine with an aldehyde (formaldehyde).<sup>4</sup>

The primer composition in the present claim 37 includes: (1) 95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a Tg of -10 °C to 50 °C, the polymer comprising in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers; (2) 0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and (3) 0.2 to 5% by weight of a volatile base. It is clear that this composition is completely different from the aminoplast resin utilized in DE '732, which teaches neither

<sup>3</sup> Office Action, page 5, first full paragraph (emphasis in original).

<sup>4</sup> See, e.g., *Hawley's Condensed Chemical Dictionary*, 13<sup>th</sup> ed. (1997).

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polyimine component (2) nor volatile base component (3). Therefore, the presently claimed primer composition includes an imine<sup>5</sup> and a volatile base and is not an "amino compound" as taught by DE '732. The Examiner has identified no technically based reason that one of ordinary skill would substitute one compound for another.

Further, the present claim 37 requires that the primer composition be formaldehyde free. In contrast, DE '732 requires the use of aminoplast resins, which are known in the art to include an aldehyde component such as formaldehyde. The Examiner attempts to argue that the composition in DE '732 is formaldehyde free because the formaldehyde "is reacted with amine so that formaldehyde no longer exists." However, this self-serving characterization does not comport with the general knowledge in the art. If one of ordinary skill in the art were looking to eliminate formaldehyde as presently claimed, he/she would not consider aminoplast resins such as those taught in DE '732, because such resins require handling and disposal of formaldehyde.

The Examiner further dismisses Applicants' arguments because she contends that Applicants are "attacking the Helmer reference individually." Applicants respectfully disagree, as the above argument instead challenges the Examiner's contention that it would be obvious to substitute the composition in Helmer for the amino resin in DE '732. The plain language of the present claim 37 makes clear that the primer composition is not an "amino resin" as used in DE '732, and the primer compositions in these two references are completely different. Therefore, Applicants respectfully submit that the compounds would not be readily substitutable as the Examiner argues in the obviousness rejection.

The Cummings reference describes a primer composition that may be used on wood substrates. The composition in Cummings is the reaction product of a polyanhydride and an amine, which the Examiner refers to as an "amino resin." As pointed out above, the presently claimed primer does not include an amine and is not an "amino resin" as understood in the art or as defined by the Examiner. Thus, while it hardens quickly under ambient conditions, the composition described in Cummings is also completely different from the specific primer composition set forth in the present claims (as well as the primer composition described in DE

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<sup>5</sup> An imine is generally understood to refer to a nitrogen-containing organic compound having a carbon-to-nitrogen double bond, while an amine is generally understood to refer to classes of compounds derived from ammonia (NH<sub>3</sub>), which would not be expected to include the carbon-nitrogen double bond. See, e.g. *Hawley's Condensed Chemical Dictionary*.

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'732, which is the reaction product of an amine and formaldehyde). Since the compounds are very different, knowledge of the compositions in Cummings would not provide the skilled artisan with any incentive to utilize the compounds in Helmer as a primer coating in a process for making a polymer coated article.

The present claim 37 further requires that the primer coating composition be overlain with a topcoat composition and then heated in a press to form a polymer coated composite. The fact that the presently claimed primer is compatible with these process steps is not discernable from the Helmer and Cummings references, which teach that the composition be applied under ambient conditions. There is no teaching in Helmer or Cummings that would suggest to one of ordinary skill that their compositions could be successfully topcoated and heated in a press as required in the process described in DE '732.

Further, the process in DE '732 requires that the primer coat composition be heated and dried prior to application of the topcoat. There is no teaching in DE '732 that would have suggested to a skilled artisan to eliminate the primer drying step by using a rapidly crosslinkable non-aminoplast composition as presently claimed. There is also no teaching that elimination of this step would have a reasonable expectation of success in forming an impregnated substrate that could be further coated and heated to form a polymer coated composite.

In view of the above, the primers used in DE '732 and Cummings are completely different chemically from the compounds described in Helmer. One of ordinary skill in the art would have no incentive to modify the process in DE '732 to replace the aminoplast resin compounds with the compounds in Helmer, and such a modification would not have a reasonable expectation of success. Further, in view of the teachings in DE '732, a skilled artisan would have no incentive to eliminate the drying step in his process.

To establish a *prima facie* case of obviousness, there must be some reason, suggestion or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the proposed combination. That knowledge cannot come from the applicant's invention itself.<sup>6</sup> It is Applicants' position that the present obviousness rejection is based on hindsight following review of the present disclosure, and is improper. Applicants respectfully submit that the process presently claimed in claims 37-39, 51-52 and 67-71 is not obvious under

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<sup>6</sup> See, e.g. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992).

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35 U.S.C. § 103(a) over DE '732 in view of Cummings and Helmer. Reconsideration and withdrawal of the rejection are respectfully requested.

*B. Paragraph 4*

In paragraph 4 of the Office Action, claims 38-39 and 71 are rejected under 35 U.S.C. 103(a) as obvious over DE '732 in view of Cummings, further in view of Helmer, and further in view of van der Hoeven (US 4,789,604). Applicant respectfully traverses the rejection. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As pointed out in Section A above, the amino compounds used in DE '732 and Cummings are very different from the compounds described in Helmer. One of ordinary skill in the art would have no incentive to modify the process in DE '732 to replace the amino compounds with the compounds in Helmer, and such a modification would not have a reasonable expectation of success. Further, in view of the teachings in DE '732, a skilled artisan would have no incentive to eliminate the drying step in the processes described therein.

These deficiencies are not remedied by the van der Hoeven reference, which would further fail to provide one of ordinary skill in the art with an incentive to make the modification to the DE '732 process proposed by the Examiner. For at least this reason, the present obviousness rejection is based on hindsight following review of the present disclosure, and is improper. Applicants respectfully submit that the process presently claimed in claims 38-39 and 71 is not obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings, Helmer and van der Hoeven. Reconsideration and withdrawal of the rejection are respectfully requested.

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### CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims.


Please charge any additional fees or credit any overpayment to deposit account number 50-1778.

If questions remain regarding the above, or if the Examiner wishes to discuss any aspect of the present application, please contact the undersigned.

Date:

November 6, 2007  
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